

# SILICON VALLEY CHEMIST



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## The Chemistry of Wine

Prof. Emeritus Phil Crews, UC Santa Cruz

The Silicon Valley ACS invites you to the UC Santa Cruz Arboretum for wine-tasting & networking, a discussion of winemaking, and garden strolls

Wines from great vintages to wildfire catastrophes: Merging natural products chemistry fundamentals with sensory evaluations. A workshop to gain a 21st Century perspective.

**Date:** Saturday, October 7, 2023

**Time:** 12:30pm-3pm

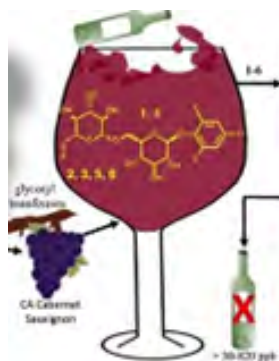
**Location:** UC Santa Cruz Arboretum & Botanic Garden, Horticulture Room 2

**Cost:** \$15 regular, \$10 students, Free for under 21. Pay with cash or check at the door. Includes access to the UC Santa Cruz Arboretum all day, 9am-5pm. **Registration required** by September 29th. [View Flyer](#) for more details.

Cheese, fruit, and veggies will be served. All attendees 21 years+ will receive a glass of wine during the reception (12:30pm-1pm) and will taste four different wines during Phil Crews' presentation (1pm-3pm).

About the Arboretum: [UC Santa Cruz Arboretum & Botanic Garden](#) | [Visitor Guide & Updated Trail Map \(PDF\)](#) | [Directions](#) |

[Watch a video](#) narrated by Frans Lanting, noted wildlife photographer, explaining the unique value of Arboretum & Botanic Garden.



### Abstract:

Wine is a complex liquid comprised of many bioorganic compounds in a 12.5% alcoholic solution with a pH range of 3-4. Wine quality assessment and winemaking methods have been in place for many centuries. Nowadays, contemporary approaches to winemaking are quite scientific as many aspects of this complex drink appear to be understood. For example, there is an excellent contemporary book, *"Understanding Wine Chemistry"* (Waterhouse et al., 2017). Decades ago, Wired Magazine reported on the *Grapes of Math (GoM)* in a comprehensive article to underscore that consulting companies exist

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## Chair's Message

Natalie McClure



The National ACS meeting last month in San Francisco was a huge success with a strong return to in-person attendance: of the total 15,019 registrations, 13,363 (89%) were in-person and 1,656 were online. San Francisco, which gets so much bad press, sparkled—the weather was perfect and the city was inviting. Our section served as local co-hosts of the meeting and had a booth by the registration area where we handed out custom fortune cookies as a memento of San Francisco. At SciMix we displayed a

poster showing all the activities our section supports. The fortune cookies were a great success and all 1500 were consumed. Here are two of the fortunes that brought some humor to the proceedings:

1. What do you do with a sick chemist?
2. What is HIJKLMNO?

Answers below.

Although we did not win the ChemLuminary for Outstanding Local Section, Large Division, which was awarded to the Greater Houston section, who clearly had a great year since they also won the ChemLuminaries for Outstanding Younger Chemist Event and Outstanding National Chemistry Olympiad, we partied the night away at the ceremony. When you attend a Fall National meeting, you should plan to attend the ChemLuminary award

*continued on next page*

*The Chemistry of Wine, continued from front page*

to help winemakers craft award winning wines. The GoM approach uses databases created via metabolomics approaches. On the other hand, many subscribe to the idea that successful winemaking and wine quality evaluations can be achieved by just using a “right-brained” approach. In this wine-centric event we will explore principles of wines and winemaking through natural products & sensory evaluations. Different flavor outcomes achieved in winemaking as a function of grape variety and the terroir differences of vineyards in California will be illustrated. The approaches to wine creation will be explored using case examples. Everyone at the workshop will have a chance to dissect the major and minor complex flavors and aromas associated with wines and to correlate them with a few key biomolecules. Answers to vexing questions will be sought by examining outcomes derived from tasting and talking about three different Burgundy style California wines. Also discussed will be recent advances obtained by the Santa Cruz campaign (UCSC & SC Labs) using small molecule natural product wine chemo-markers to forecast wine quality damage caused by wildfire smoke.

Recommended reading before the workshop: *Natural Product Phenolic Diglycosides Created from Wildfires, Defining Their Impact on California and Oregon Grapes and Wines* ([open access](#))



**Biography:**

Phil Crews is a California native and has spent most of his academic career in the state. He received a B.S. from UCLA and his Ph.D. from UC Santa Barbara working with Domenick Bertelli. After a postdoc at Princeton University, in 1970 he became a UCSC Assistant Professor and is currently an Emeritus Professor for the Chemistry and Biochemistry Department at UC Santa Cruz. The primary goal of his research group was to understand the chemistry of tropical marine sponges and marine-derived fungi. Bioassay-guided isolation assisted in the discovery of natural products potent against human diseases such as cancer and neglected tropical diseases. The search for novel active compounds incorporated elements of structure elucidation, employing state-of-the-art nuclear magnetic resonance (NMR) techniques. [Crews Lab site](#)

A passionate home-winemaker and wine educator, he took his “hobby” public. Specializing in Burgundian and Rhone style wines from select coastal vineyards, the [Pelican Ranch Winery](#) is a family owned and operated winery in Capitola. Established in 1997, the winery is near by the Monterey Bay which provides a constant, cool, coastal influence that allows for the making of fine wines.

*Chair's Message, continued from front page*

ceremony. It is the best party that ACS offers.

At each National meeting, our councilors participate in the Council meeting which is the main governance meeting for ACS. One significant action taken at this year's Council meeting was the recommendation to add international representation to the Board of Directors which will be done by decreasing the total number of Directors-at-Large from six to five and creating an International District Director. The total number of Directors on the Board will remain at 15. The council approved this recommendation after a long discussion of the pros and cons. Next, this recommendation will need to be approved by the Board and then an amendment to the ACS constitution will be required. A report addressing the full Council meeting is included in this newsletter.

International members now account for about 18% of the ACS and this number is growing. Over 5000 chemists from 80 countries attended the SF meeting, reflecting the high level of international interest. Different approaches to offer representation for the international chapters on council are also being explored. Stay tuned for additional changes to ACS governance to be discussed at future meetings. The basic principle is one that the United States was founded on: no taxation (or dues in this case) without representation.

With the National meeting behind us, it is time to start some new events. National Chemistry Week is Oct 15-21 and this year's theme is the “Healing power of chemistry.” We are planning a series of events including at the Martin Luther King Library in San Jose, the Ronald McDonald House in Palo Alto, and the Redwood City Library. More locations are being planned. If you are interested in volunteering, please [let me know](#). These are very rewarding and great fun.

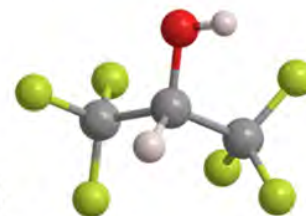
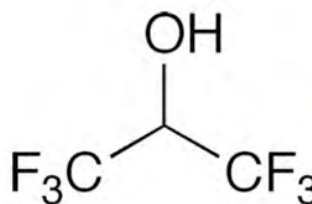
The plans for our Fall in-person event have also gelled. I hope to see you at the Chemistry of Wine program in the UC Santa Cruz Arboretum on October 7. Be sure to come a bit early and enjoy the Arboretum. You get free entrance to the Arboretum when you register for our ACS event, and it is a very special place.

*Fortune Cookie Answers: 1) Barium or Curium; 2) H2O*

CHEMISTRY

Quiz

It took almost six decades, but now I'm a star in the chemical world. What molecule am I?



Answer

# CALENDAR OF EVENTS

<https://www.siliconvalleyacs.org/events/>

## - September 2023 -

- Sep 7 Silicon Valley ACS Executive Committee Meeting (Virtual)**  
7:00-8:30pm. Open meeting, please contact [Chair](#) to attend as a guest.
- Sep 7 Transforming Challenges into Opportunities: Mentors, Imposter Syndrome, and Diversity**  
Sponsored by ACS Webinars and ACS Office of Diversity, Equity, Inclusion and Respect  
11am-Noon, Online via Zoom, Free, [Registration required](#)
- Sep 7 Chemical Vapor Deposition Techniques for Design & Synthesis of Polymer Nanomaterials**  
Prof. Rong Yang, Chemical & Biomolecular Engineering, Cornell University  
Sponsored by the Golden Gate Polymer Forum  
Note the earlier start time: 5-6pm, Online via Zoom, Free/\$5 Donation. [Registration required](#) by September 6 at 1pm.
- Sep 13 Passport to Progress: New Immigration Initiatives for International Students and Early Career STEM Researchers**  
Sponsored by ACS Webinars and ACS Advocacy  
11am-Noon, Online via Zoom, Free, [Registration required](#)
- Sep 14 Mass Spectrometry Made Simple; or, How to Weigh a Molecule (Even Though There Isn't a Way to Weigh a Molecule)**  
Sponsored by ACS Webinars and ACS Office of Career and Professional Education  
11am-Noon, Online via Zoom, Free, [Registration required](#)
- Sep 14 The 33rd First Annual Ig Nobel Prizes: Act I**  
Sponsored by Improbable Research  
3-4:30pm, Online via Zoom, Free, [Learn more](#)
- Sep 16 The Physics and Chemistry of the Atomic Nucleus**  
Heather Crawford, PhD, Lawrence Berkeley National Laboratory (LBNL)  
Sponsored by California ACS Section  
10:30am-Noon, Online via Zoom, Free, [Registration required](#)
- Sep 20 The Gut Microbiome-Brain Alliance: The Connection to Health and Disorders**  
Sponsored by ACS Webinars  
11am-Noon, Online via Zoom, Free, [Registration required](#)
- Sep 24-29 2023 SSRL/LCLS Users' Meeting**  
Sponsored by the Stanford Linear Accelerator (SLAC) National Laboratory, 2575 Sand Hill Road, Menlo Park, California USA.  
[Learn more and register](#). General \$275, Student \$50.

## - October 2023 and Beyond -

- Oct 5 The "Ins and Outs" of Networking**  
Sponsored by ACS Webinars, ACS Professional Relations Division, and ACS Industry Member Programs  
11am-Noon, Online via Zoom, Free, [Registration required](#)
- Oct 5 Silicon Valley ACS Executive Committee Meeting (Virtual)**  
7:00-8:30pm. Open meeting, please contact [Chair](#) to attend as a guest.
- Oct 7 Wines from great vintages to wildfire catastrophes: merging natural products chemistry fundamentals with sensory evaluations. A workshop to gain a 21st century perspective.**  
Prof. Emeritus Phil Crews, UC Santa Cruz  
Sponsored by Silicon Valley ACS Section  
Wine-tasting & networking, a discussion of winemaking, and garden strolls  
12:30pm-3pm at UC Santa Cruz Arboretum & Botanic Garden, \$15 regular, \$10 students, Free for under 21. [Registration required](#) by September 29th. [View Flyer](#) for more details.
- Oct 11 Exploring Health and Environment: Navigating Chemicals in Our Everyday Lives**  
Prof. Sonya Schuh, Saint Mary's College of California  
A joint event between the California local ACS section & the Association Of Women In Science, East Bay Chapter  
5:00-7:30pm at 4D Molecular Therapeutics, 5959 Horton St., #200 Conference Room, Emeryville; Free; [Registration required](#)
- Oct 14 Kid Makers: Pop Up Chemistry for Middle School Scientists**  
Sponsored by ACS Silicon Valley and Redwood City Public Library (RCPL)  
2-3 PM, RCPL Downtown Location, 1044 Middlefield Road, Redwood City, Free, [Learn more](#)
- Oct 20 National Chemistry Week, Ronald McDonald House**  
Sponsored by Silicon Valley ACS  
Volunteers needed. Please [contact us](#).
- Oct 25 CAS SciFinder® Live: What's New and Upcoming**  
Sponsored by CAS (Chemical Abstracts Service)  
11am-Noon, Online via Zoom, Free, [Registration required](#)
- Nov 3 4th Annual Bay Area Chemistry Symposium (BACS) 2023**  
Robertson Auditorium, UCSF  
For more information on sponsorship & registration:  
[bayareachemistrysymposium.com](http://bayareachemistrysymposium.com)  
[View and share flyer](#)

# The Physics and Chemistry of the Atomic Nucleus

## Webinar, Saturday, September 16, 2023, 10:30AM

California Section  
American Chemical Society



All are welcome  
Saturday, September 16, 2023

### Time

10:30 – 11:00 am  
Chatting

11:00 am  
Talk and Discussion

### Reservation

Please visit the [CalACS website](http://CalACS website) [www.calacs.org](http://www.calacs.org) to register for this meeting or use Brown Paper Tickets.

RSVP here!

Please register before Thursday, September 14, 2023, 12 noon. Your email address is needed to send the ZOOM link, which will be shared with attendees on or before the day of the event via Brown Paper Tickets.

### Cost

Free!

### About the Speaker



Heather Crawford, PhD

Athens, OH. Heather then returned to LBNL as a career-track and now career staff scientist in the nuclear structure group. She is a researcher into the structure of very neutron-rich exotic nuclei and served for 5 years as the chair of the Facility for Rare Isotope Beams (FRIB) Users executive committee, representing a user's group of 1400+ scientists.

Heather Crawford received her B.Sc. in Chemistry from Simon Fraser University, in Burnaby, British Columbia, Canada. She earned her Ph.D. in nuclear chemistry from Michigan State University, working with Prof. Paul Mantica and studying the beta-decay properties of neutron-rich isotopes of Ca, Sc and Ti at the National Superconducting Cyclotron Laboratory. She then worked as a postdoctoral researcher in the nuclear structure group at Lawrence Berkeley National Laboratory (LBNL), before moving to an Assistant Professor of Physics position at Ohio University in

### Abstract

The atomic nucleus truly sits at the intersection of chemistry and physics – over the decades both scientific fields have laid claim to these uniquely mysterious quantum systems. I will talk in this presentation about the current state-of-the-art in nuclear science, including the new Facility for Rare Isotope Beams, which is opening a new era for studies of the nucleus. I'll also discuss what we are learning each day to advance our understanding of nuclei across the Segre chart, and through these studies, our knowledge of the origin of the elements and isotopes we find on Earth and across the cosmos.

### Questions?

Please contact Elaine Yamaguchi at [eyamaguchi08@gmail.com](mailto:eyamaguchi08@gmail.com)

# BACS



BAY AREA CHEMISTRY SYMPOSIUM  
connecting industry + academia

an ACS  
sponsored  
event



Please join us for

The 4<sup>th</sup> annual **Bay Area Chemistry Symposium**, an ACS sponsored symposium for Synthesis and Design in Medicinal & Process Chemistry



WHEN

Friday, November 3<sup>rd</sup>, 2023

WHERE

Robertson Auditorium, UCSF

SUBMIT

Abstracts for talks & posters today!

This symposium, unique in the Bay, will provide an ideal forum for students, postdocs, and industrial chemists to meet and exchange ideas covering themes in chemical biology, synthesis, and computational chemistry. The 2023 symposium will feature keynote seminars from leading local academics & industrial chemists, as well as short talks from students, postdocs, and industry researchers. A lively poster session promises a much-anticipated return to networking with local chemists through this opportunity to learn about cutting-edge chemistry across the Bay Area's outstanding institutions. Visit our website for more details!

## OUR 2023 KEYNOTE ACADEMIC SPEAKERS



Prof. Kevan Shokat  
UC San Francisco



Prof. Carrie Partch  
UC Santa Cruz



Prof. John Hartwig  
UC Berkeley

Last year's BACS was  
generously supported by our

## INDUSTRY SPONSORS



For more information on sponsorship & registration, visit: [bayareachemistrysymposium.com](http://bayareachemistrysymposium.com)

# SciMix @ Fall 2023 ACS National Meeting Silicon Valley ACS in Local Section Row



Jigisha Shah, Amanda Nelson, and Natalie McClure



Howard Peters, Member of Silicon Valley ACS and Chemistry and the Law Division in Division Row at SciMix.

Download enlarged PDF version of the poster: [66MB](#) or [high resolution 126MB](#). Poster created by Eefei Chen for SciMix & ChemLuminary Awards. Also see [Flyer about Silicon Valley ACS](#).

# Report of the Fall 2023 Meetings Held in San Francisco

## ACS Council, August 16, and the ACS Board of Directors, August 11-13

### Actions of the Council

#### Election Results for Elected Committees of Council

- **Council Policy Committee (CPC):** Martha G. Hollomon, Elizabeth M. Howson, Jeanette M. Van Emon, and Lydia E. M. Hines were elected for three-year terms (2024-2026). James C. Carver was elected for a one-year term from 2024-2025 to fill the unexpired term of Will E. Lynch, who was elected to the ACS Board of Directors.
- **Committee on Committees (ConC):** Anna G. Cavinato, Andrea B. Twiss-Brooks, Thomas R. Gilbert, Jeanne R. Berk, and W. Matthew Reichert were elected for three-year terms (2024-2026).
- **Committee on Nominations and Elections (N&E):** Linette M. Watkins, Arlene A. Garrison, Zaida C. Morales Martinez, Amber F. Charlebois, and Jetty L. Duffy-Matzner were elected for three-year terms (2024-2026). Kevin J. Edgar was elected for a one-year term from 2024-2025 to fill Silvia Ronco's vacancy.

#### Highlights from Reports and Key Actions

- Chief Executive Officer Albert Horvath honored the memory of our newly appointed Editor-in-Chief of C&EN, Mohammed Yahia, who passed away on the way to the San Francisco meeting. Our thoughts go out to his wife Ola and their two young children.
- Horvath also shared ACS's efforts to engage more members while recruiting and retaining talented staff as we continue to adapt to the post-pandemic workplace. He shared an update on the ACS Strategic Initiatives and the Society's continued strong financial performance.
- Effective January 1, 2024, expense reimbursement will be \$2,000 per Councilor, per meeting.
- Council approved the Petition to add International Representation to the Board of Directors, decreasing the total number of Directors-at-Large from six to five and creating an International District Director. Following approval by the Board of Directors, the amendment to the ACS Constitution will require the support of two-thirds (2/3) majority of voting members.
- Council approved the creation of the Singapore International Chemical Sciences Chapter.

#### Council Special Discussion

ACS President Judith Giordan introduced and led a special discussion on "ACS Council: Equitable Governance for the Future." She sought Councilor input on ideas to improve representation, broadly defined, on Council and across ACS governance. Councilors provided their ideas and thoughts, and relevant Society units will receive this input within the next several weeks.

#### Resolutions

The Council passed several resolutions:

- In memory of deceased Past President Ned D. Heindel
- In memory of deceased Past President Paul H.L. Walter
- In memory of deceased Councilors
- In appreciation of the California and Silicon Valley Sections, host Sections for the fall 2023 ACS meeting, the Divisional program chairs, symposium

organizers, and ACS staff for the planning and execution of the meeting

- In appreciation of the outgoing Chair of Council, Judith C. Giordan

#### Fall 2023 Meeting Attendance

The fall 2023 meeting was held from August 13-17. As of August 16, there were 15,019 registrations (13,363 in-person and 1,656 online).



### Actions of the Board of Directors - Executive Session

The ACS Board of Directors met in Executive Session, considered several key strategic issues, and responded with numerous actions. They opened the session with a reflection on Diversity, Equity, Inclusion, and Respect (DEIR).

#### Chief Executive Officer's Report

Chief Executive Officer Albert Horvath reported on issues relating to ACS strategic activities; enterprise risk management (ERM); environmental, social, and governance (ESG); an Orlando 2028 meeting update; and ACS's web presence.

#### Board Committees and Working Groups

The Board of Directors received and discussed reports from the Governing Board for Publishing, the Board Committee on Professional and Member Relations, the Society Committee on Publications, the Committee on Budget & Finance, the Committee on Committees, the Board Working Group on Structure and Representation, and the Council Policy Committee Future Council Representation Task Force. Some of these committees requested and obtained Board action on one or more items, as follows:

- Upon recommendation of the Society Committee on Publications, the Board voted to approve the reappointment of six ACS journal editors and to appoint three new ACS Journal editors. Announcements will be made after individuals are notified and arrangements for their service made.
- Upon recommendation of the Committee on Professional and Member Relations, the Board approved the ACS Prism Award to recognize a public figure or prominent leader in their field who has a background in chemistry but is working in a different field or is not a practicing chemist.
- Upon recommendation of the Committee on Professional and Member Relations, the Board approved an ACS nominee for the 2024 Perkin Medal, an award given annually by the Society of Chemical Industry to a scientist residing in the United States for an "innovation in applied chemistry resulting in outstanding commercial development."
- The Board Working Group on Structure and Representation provided an update on their efforts to add an International District Director to the Board of Directors in the form of the Petition to Add International Representation on the Board of Directors. The Board unanimously supported the petition, which would amend the ACS Constitution and Standing Rules.

#### Other Society Business

There were two additional discussions; one focused on raising items of strategic concern from members of the Board, and the second was dedicated to sharing feedback so Board members can hear from ACS members, elevating their voices to all Board members.



## 2023 National Chemistry Week Illustrated Poem Contest

### The Healing Power of Chemistry

The Silicon Valley Local Section of the American Chemical Society (ACS) is sponsoring an illustrated poem contest for students in kindergarten through 12th grade. See below for details.

**Contest Deadline: October 27, 2023**

**Prizes: Amazon gift cards**

**Contact: Elizabeth Migicovsky (elizabeth.migicovsky@sjsu.edu)**

Winners of the Silicon Valley Local Section's Illustrated Poem Contest will advance to the National Illustrated Poem Contest for a chance to be featured on the ACS website and to win prizes!

---

Write and illustrate a poem using the NCW theme, **"The Healing Power of Chemistry."**  
Your poem must be **no more** than 40 words and in the following styles to be considered:

**HAIKU - LIMERICK - ODE - ABC POEM - FREE VERSE - END RHYME - BLANK VERSE**

#### Possible topics related to the theme include:

- Skin anatomy and care
- Vaccines
- Wound healing
- Zoopharmacognosy
- Antibiotics
- Antibodies
- Bandages
- Immune system
- Medications
- Pathogens

#### Entries will be judged based upon:

- Artistic Merit - use of color, quality of drawing, design, and layout
- Poem Message - fun, motivational, inspiring about yearly theme
- Originality Creativity - unique, clever and/or creative design
- Neatness - free of spelling and grammatical errors

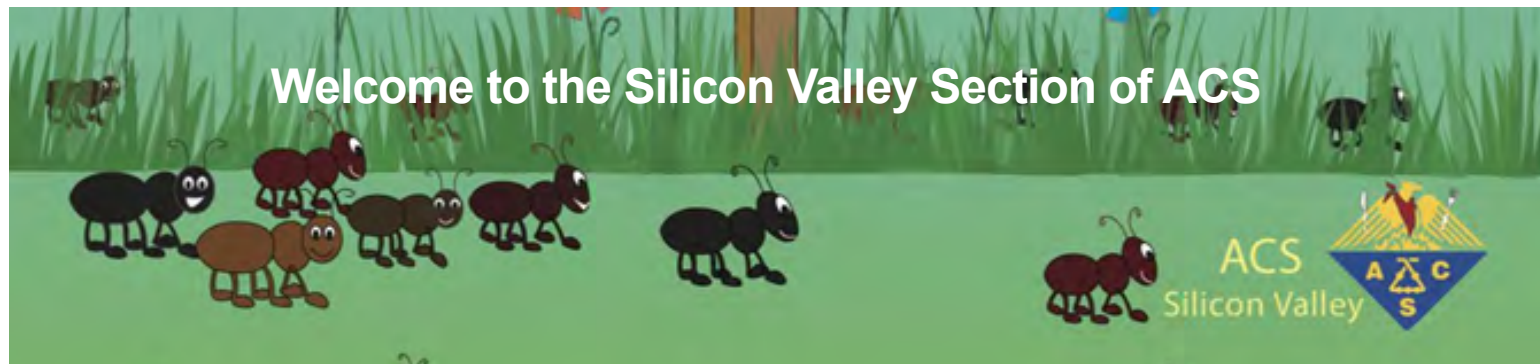
#### Contest rules:

- All poems must be no more than 40 words, and in one of the following styles to be considered: Haiku, Limerick, Ode, ABC poem, Free verse, End rhyme, and Blank verse.
- Entries are judged based upon relevance to and incorporation of the NCW theme, word choice and imagery, colorful artwork, adherence to poem style, originality and creativity, and overall presentation.
- All entries must be original works without aid from others. Poems may be submitted by hand on an unlined sheet of paper not larger than 11" by 14" or scanned and sent via email. Illustrations may be created using crayons, watercolors, other types of paint, colored pencils, or markers. The illustration may also be electronically created by using a digital painting and drawing app on a computer, tablet, or mobile device.
- The text of the poem should be easy to read and may be typed before the hand-drawn or digital illustration is added, or the poem may be written on lined paper, which is cut out and pasted onto the unlined paper with the illustration.
- No clipart or unoriginal images can be used.
- Only one entry per student will be accepted; all entries must include an entry form. If the illustration is created using a digital painting or drawing app, the name of the program must be included on the entry form.
- Acceptance of prizes constitutes consent to use winners' first name, and entry for editorial, advertising, and publicity purposes.
- Do **not** place participant names on the front of your poem





# Welcome to the Silicon Valley Section of ACS



Each month, our Silicon Valley local ACS section receives a spreadsheet from national ACS with the names of members new to our section. The members are either new to ACS, have transferred in from other areas, or are the newest members - students. As a welcoming gesture, the SVACS Executive Committee offers new members free attendance at a catered SVACS event. Come join us at our in-person gatherings! Our October 2023 featured program is an unusual combination of wine-tasting in an arboretum setting. To register as our guest, [contact us](#) directly to receive complimentary admission for you and a friend.

We hope you will also join us for an outreach event, like judging a science fair, proctoring the high school Chemistry Olympiad or participating in a National Chemistry Week hands-on experiment event. The local section is a volunteer organization. Attend an event, volunteer to help, and get to know your local fellow chemists. Welcome!

## NEW ACS MEMBERS

Dr. Olga O. Alekseeva	Mr. Michael Cole Detels	Chance Jellinek Jellinek	Ms. Sharon Mathys	Ishwar Singh
Dr. Alexander Al-Zubeidi	Evelyn Do	Ilan Jen-La Plante	Mike Meyer	Alexandre Sorlin
Isaac Applebaum	Nhu Doan	Prof. Felipe H da Jornada	Dr. Joshua K. Michel	Nivita Susendran
Alina Arzamassky	Dylan Dodd	Melissa Jurica	Mr. Michael Robert Mish	Rajasree Swaminathan
Dr. Vasundhra Bahl	Rachel Dorin	Yehbeen Irene Kim	Rama Mishra	Uyen Ta
Sophia Bailey	Kimai Dosch	Kasturi Kirubaharan	William Mitch	Kesha Tamakuwala
Dr. Michal Bajdich	Mr. Songzhan Du	Sanghyuk Ko	Ayan Mohamed	Alice Tao
Ms. Kimberly Barrett	Mirabelle Feng	Sanjeev Kolli	Dominique Monteil	Mr. Ahit Kaan Tarhan
Mr. Hassen Bel Abed	Carl Fisher	Andrew Konstant	Anthony Moritz	Eric Taw
Ahanjit Bhattacharya	Breena Fraga	Valentina Kornach	Dr. Johannes Morstein	Steven Teddy
Dr. Brian Blank	Mr. Steven D. E. Fried	Ravi Kotamraju	Mario Motta	Lea Thai-Savard
Prof. Alexandria B. Boehm	Tianren Fu	Jun H. Kwon	Kelsey Mu	Caitlin Lin Tsai
Dr. Benjamin Ross Boswell	Dr. Komal Garg	Susan Larrabee	Srijit Mukherjee	Melanie Tsui
Gabriel Brenner	Saba Ghazvini	Dr. Kate Lassman	Dr. Young-Hye Na	Mr. Steven H. Unger
Darya Budkina	Miss Olivia Francis Goethe	Thomas Daniel Lavery	Dr. Johanna Nelson Weker	Karthik Veeravalli
Xufeng Cao	Blanca Gomez	John Lee	Hannah Nguyen	Srishti Venkatesan
Ian Carter-O'Connell	German Augusto Gomez	Yunseo Lee	Josefine Eils Nielsen	Sofie Verschraegen
Edison Castro	Samantha Green	Jiaming Li	Sahasra Nistala	Diana Jin Wang
Indalina Chan	Tiffany Gu	Pu Li	Adedeji Ogunyemi	Mr. Yong Wang
Sarah Chang	Jinyu Guo	Zhijian Li	Ms. Su Ilayda Ozcan	Xin Wen
Wania Nagaraju Chanveer	Fariyah Haque	Wendy Liang	Jack Petersen	Jake Wood
Dr. Charles Minh Chau	Kiana Harker	Andrew Haoming Lin	Justin Peterson	Newton Wu
Rosie Chen	Seth Harris	Yangju Lin	Nandhini Rajagopal	Alicia Xie
Ting Chia Chen	Cindy Henderson	Tyler Liu	Anirudh Raman	Yeyue Xiong
Yongjing Chen	Mr. Alejandro Gabriel Herrera	Yan Liu	Corey Reeves	Lexi Xu
Herman Ching	Dr. Aru Hill	David Lowe	Dr. Maureen Reilly	Shiyun Xu
Randall Chiu	Seoyeon Hong	Amber Lu	Jing Ming Ren	Stella Yang
Wai Choi	Austin Hopiavuori	Breanna Lu	Isabella Reyes	Dr. Inn Yuk
Yunsie Chung	Kingston Huang	Jennifer Luo	Stephanie Robinson	Aleksandra Zatirakha
Jasmine Corbin	Emily R. Hung	Dr. Wenchen Luo	Jonathon Ryan	Meng Yao Zhang
Jennifer Cordoza	Amitha Inturi	Mr. Quang Luu Nguyen	Sindhuja Sagar	Dr. Shiji Zhao
Luis Cuadra-Rodriguez	Aviva Iyerkhan	James Mack	Dr. Sukeerthi Seetharaman	Ke Zheng
Dr. Hongjie Dai	Taylor Jackson	Lucas Man	Dr. Jack Christopher Sharland	
Tara deBoer	Cooper Jamieson	Shyama Mandal	Dr. Anuska Shrestha	
Meaghan M. Deegan	Jwwad Mohammad Javed	Nicole Martin	Dr. Sandra Maria Simon	

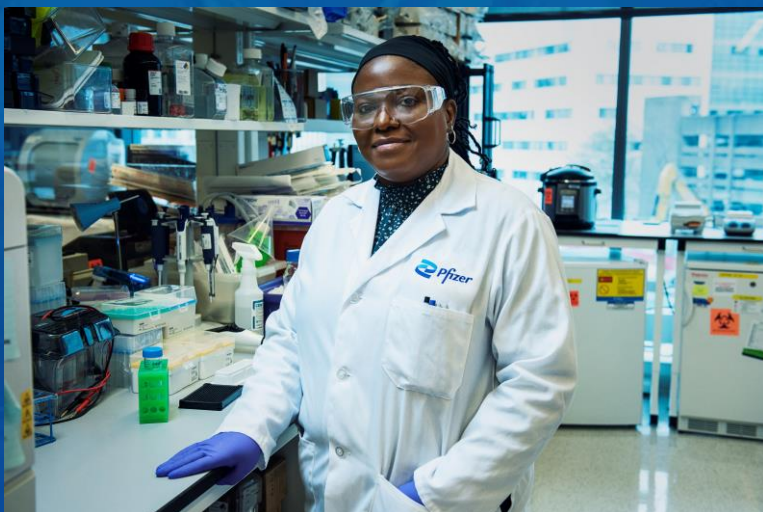


## Pfizer Emergent Leader Award

The WCC Pfizer Emergent Leader Award recognizes 8 individuals\* who will present their research at an awards symposium to be held during ACS 2024 Spring Meeting.

Awardees will be given a \$1,500 travel stipend to cover expenses. They will present their research at a WCC/Pfizer half-day symposium and be recognized at the WCC Luncheon and Just Cocktails Reception. [Apply today.](#)

**Application Deadline:  
October 1, 2023**



*\* This includes women (both cis and trans) and persons assigned female at birth (AFAB), in their 2nd year and above in their graduate studies or undertaking post-doctoral research, in the areas of organic chemistry, synthetic methodology, total synthesis, medicinal chemistry, computational chemistry and chemical biology. Only US citizens and permanent residents are eligible.*

## Nominations for Gustavus John Esselen Award for Chemistry in the Public Interest



The Esselen Award for Chemistry in the public interest is a prestigious honor provided by the Northeastern Section of the American Chemical Society. The award annually recognizes a chemist whose scientific and technical work has contributed to the public well-being, and has thereby communicated positive values of the chemical profession. The Awardee should be a living resident of the United States or Canada at the time of nomination, and the significance of their work should have become apparent within the five years preceding nomination.

The Esselen Award has no limitations with respect to the chemical field in which the nominees are active. It differs from many other awards in that it is for chemical activities whose importance to the public has been

demonstrated. A list of recent awardees appears at the bottom of this notice. A complete list is available at [http://www.nesacs.org/awards/esselen/awards\\_esselen\\_recipients.html](http://www.nesacs.org/awards/esselen/awards_esselen_recipients.html).

The Award consists of a medal and a check for \$5,000. Travel expenses incidental to the conferring of this award will be reimbursed. The award is usually presented at the April meeting of the Northeastern ACS Section in Cambridge, Massachusetts. The Awardee will deliver an address on the subject of the work for which the honor is being conferred, or for work in progress which is also directed to chemistry in the public interest. The award address should be at a level where it would be of interest to an audience that does not have knowledge of the specific field.

Nominations shall include: 1) a letter signed by the primary sponsor with a description of the nominee's work recognized as making a major contribution to the public welfare and as communicating positive values of the chemical profession, plus the names of two co sponsors; 2) short supporting co-sponsor statements; 3) the nominee's professional biography including a list of no more than ten of the nominee's publications selected for their pertinence to the work nominated for recognition; and 4) copies of popular and technical press news or feature articles indicative of public benefit and interest. Inquiries should be directed to Dr. John Macor, c/o Jeananne Piper Grady, 11 Thaxter Street, Hingham, MA 02043. All nomination material must be consolidated into a single electronic pdf file and emailed to [john.macor@sionnatx.com](mailto:john.macor@sionnatx.com) with a copy to [jpipergrady@gmail.com](mailto:jpipergrady@gmail.com). The due date is Oct. 13, 2023. Joint nominations are acceptable. The Award Committee will review the nominations and the award recipient will be notified by the first of February.

### RECENT AWARDEES AND TITLES OF ESSELEN AWARD ADDRESSES

- 2013: Michael H. Gelb and František Tureček, University of Washington. The Chemistry of Next Generation Newborn Screening.
- 2014: David R. Walt, Tufts University. Microwell Arrays: From Genetic Analysis to Ultra-High Sensitivity Diagnostic.
- 2015: Eric N. Jacobsen, Harvard University. Catalysis: A Frontier at the Center of Chemistry.
- 2016: Timothy M. Swager, Massachusetts Institute of Technology. Chemical/Biological Sensing: Science and Real World Applications.
- 2017: Neil M. Donahue, Carnegie Mellon University. Atmospheric Ozonolysis: From Collisional Energy Transfer to Particle Physics and Everything in Between.
- 2018: Jennifer A. Doudna, University of California, Berkeley. Re-writing the Code of Life: The Impacts and Ethics of Genome Editing.
- 2019: Carolyn R. Bertozzi, Stanford University. Chemical Approaches to Problems in Global Health.
- 2020: Geoffrey W. Coates, Cornell University. In Pursuit of the Perfect Plastic.
- 2022: Philip S. Low, Purdue University. A New Generation of Targeted Therapies for Cancer, Autoimmune, and Infectious Diseases.
- 2023: Kimberly A. Prather, Scripps Institution of Oceanography. Tiny Critters, Huge Impacts: How Microbes Impact Climate and Health.

## Burning 'Forever Chemicals' with Water

### A Reactions Science Video



[Watch video on YouTube](#) (4:15 minutes)

"Forever chemicals, otherwise known as perfluoroalkyl and polyfluoroalkyl substances (PFAS), are extremely useful industrial chemicals. They can also leak into the environment, your drinking water and your blood. And they last (practically) forever. But now, chemists have found a new way to destroy them: burning them with water."

Source: <https://www.acs.org/pressroom/reactions/library/burning-forever-chemicals-with-water.html> (posted August 16, 2023)

## Advancing Laboratory Safety Teams



Image Credit: Calla Mae McCulley

We are pleased to share the final report from the **2022 ACS Presidential Chemical Safety Summit**. One recommendation outlined in the report is to encourage and support **Laboratory Safety Teams (LSTs)** in graduate programs to reflect industry expectations.

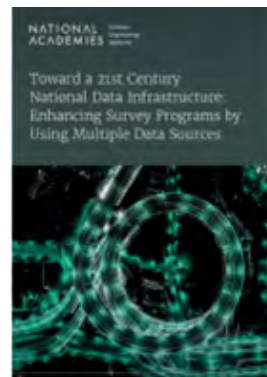
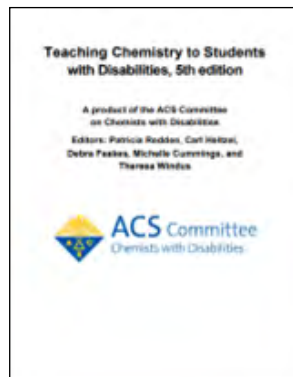
Silicon Valley ACS Members,  
To gauge your interest in participating in support of LST programs:

1. Are you aware of, interested in, or involved with any academic-industrial partnerships?
2. Can you recommend resources that may be beneficial for LSTs?
3. Are you interested in working with ACS to grow the LST program?

Please submit your interest in supporting the LST program to [this form](#).

For more information, contact the ACS Office of Safety Programs at [safety@acs.org](mailto:safety@acs.org)

## New and Noteworthy Publications



**ACS Chemical Safety Summit** (American Chemical Society, 2023) – “The fourth ACS Presidential Safety Summit was held on October 13–15, 2022, at ACS headquarters in Washington, DC. Co-organized by the ACS Committee on Chemical Safety (CCS) and the ACS Office of Safety Programs. This summit brought together 39 participants from industry, academia, national laboratories, graduate students and postdoctoral scholars, and ACS staff members. Three guiding questions focused discussions on articulating and communicating industry needs and expectations related to laboratory safety for new Ph.D. hires in research and development (R&D).

- Question 1: What laboratory safety competencies (knowledge, skills, and attitudes) do new Ph.D. hires need to reduce the time for onboarding in industrial R&D laboratories where chemicals are used?
- Question 2: Building on the successes of recent initiatives, what additional opportunities are there for industry and ACS to respond to industry’s needs and expectations related to laboratory safety for new Ph.D. hires in R&D?
- Question 3: How do we broaden and continue the summit conversations?”

**Advancing environmentally sustainable health research** (Wellcome Trust, 2023) – “This report by RAND Europe outlines the current state of initiatives aimed at reducing the environmental impact of health research. 146 tools and initiatives were identified, many of which are being driven by the voluntary efforts of concerned researchers.”

**Applying Lessons Learned from COVID-19 Research and Development to Future Epidemics: Proceedings of a Workshop** (National Academies of Sciences, Engineering, and Medicine, 2023) – “The COVID-19 pandemic catalyzed unparalleled speed and cross-sector collaboration in the innovation of tools and technologies to address an emerging infectious disease outbreak. Continued innovation and collaboration in rapid development and implementation of new vaccines, therapeutics, and diagnostics is central to future outbreak preparedness. The National Academies Forum on Microbial Threats; Forum on Drug Discovery, Development, and Translation; and the Forum on Medical and Public Health Preparedness for Emergencies and Disasters held a workshop in December 2022 to explore how innovative approaches in research can enhance health systems preparedness and responses to emerging infectious diseases and dangerous pathogens. Workshop participants reflected on critical scientific infrastructure for stakeholder coordination and innovations that can facilitate rapid and effective preparedness and response to emerging infectious disease threats. This Proceedings of a Workshop summarizes the discussions held during the workshop.”

**The Green Future Index 2023** – “The Green Future Index 2023 is the third edition of the comparative ranking of 76 nations and territories on their ability to develop a sustainable, low-carbon future. It measures the degree to which their economies are pivoting toward clean energy, industry,

agriculture, and society through investment in renewables, innovation, and green policy.”

**Teaching Chemistry to Students with Disabilities, 5th Edition** (ACS Committee on Chemists with Disabilities, 2023) – “This is a downloadable, searchable, eBook that provides guidance on accommodations for a variety of disabilities both visible and invisible, applicable to academia and industrial settings. There is also guidance on what is expected legally by the American Disabilities Act (ADA). Included in each chapter is contact information for the authors for follow-up questions or deeper discussion. For more information you can contact [cwg@acs.org](mailto:cwd@acs.org)”

**Toward a 21st Century National Data Infrastructure: Enhancing Survey Programs by Using Multiple Data Sources** (National Academies of Sciences, Engineering, and Medicine, 2023) – “Much of the statistical information currently produced by federal statistical agencies - information about economic, social, and physical well-being that is essential for the functioning of modern society - comes from sample surveys. In recent years, there has been a proliferation of data from other sources, including data collected by government agencies while administering programs, satellite and sensor data, private-sector data such as electronic health records and credit card transaction data, and massive amounts of data available on the internet. How can these data sources be used to enhance the information currently collected on surveys, and to provide new frontiers for producing information and statistics to benefit American society?”

# Interesting and Cool Science in the News

**Adapting Ritalin® to tackle cocaine abuse** (ACS Press Release, August 30, 2023)

**AI predicts chemicals' smells from their structures** (Nature news, August 31, 2023)

**Aluminum materials show promising performance for safer, cheaper, more powerful batteries** (National Science Foundation Research News, August 31, 2023)

**Ancient DNA reveals the living descendants of enslaved people through 23andMe** (Nature news, August 3, 2023)

**Biodegradable ultrasound opens the blood-brain barrier** (National Science Foundation Research News, August 3, 2023)

**A biotech company says it put dopamine-making cells into people's brains** (MIT Technology Review, August 31, 2023)

**'Black swan' pathogens from ancient permafrost may be getting ready to wake up** (Live Science, August 2, 2023)

**Clarivate Annual G20 Scorecard Analyzes Global Research Performance Trends Across G20 Nations** (STM Publishing News, August 30, 2023)

**'Crushing' chemical innovations at the heart of newly expanded NSF center** (National Science Foundation NSF News, August 8, 2023)

**Dispute over formaldehyde toxicity assessment escalates** (Chemistry World, August 14, 2023)

**A DIY 'bionic pancreas' is changing diabetes care — what's next?** (Nature news, August 30, 2023)

**Finger sweat test shows promise for checking that patients are taking antipsychotics** (Chemistry World, August 31, 2023)

**Global air pollution is a major health risk** (Futurity, September 1, 2023)

**Growing solutions to childhood stunting** (Stanford Center on Food Security and the Environment, August 30, 2023)

**Hidden cameras spot wildlife returning home after 2018 megafire [in Northern California]** (National Science Foundation Research News, August 29, 2023)

**How climate change exacerbates air pollution (and its health impacts)** (Stanford Center for Innovations in Global Health news, August 24, 2023)

**How optimizing indoor humidity can help stop the spread of Covid and flu** (Knowable Magazine, August 23, 2023)

**How the 'groundbreaking' Henrietta Lacks settlement could change research** (Nature news, August 3, 2023)

**How Trustworthy Are Large Language Models**

**Like GPT?** (Stanford Human-Centered Artificial Intelligence, August 23, 2023)

**Human scent receptors could help 'sniff out' nerve gases in new sensor** (ACS Press Release, August 9, 2023)

**Hydrogen-free hydrogenation offers simple solution for medicinal chemists** (Chemistry World, September 1, 2023)

**Is our phosphorus use sustainable?** (National Science Foundation Research News, August 22, 2023)

**It's so metal: Scientists confirm nickel plays a key role in an ancient chemical reaction** (SLAC News, August 18, 2023)

**Keeping Cool with Color-Changing Labels** (ACS Axial, August 10, 2023)

**The living things that feast on plastic** (Knowable Magazine, August 24, 2023)

**Mapping antibiotic's binding of its target points to way to give drugs the killer edge** (Chemistry World, September 1, 2023)

**Melting glaciers will reveal vast new ecosystems in need of protection** (Nature news, August 16, 2023)

**Microplastics found in human heart tissues, both before and after surgical procedures** (ACS Press Release, August 9, 2023)

**Mixed Media: The Chemistry of the Great Masters' Paintings** (ACS Axial, August 29, 2023)

**New AI algorithm learns chemical language, accelerates polymer research** (National Science Foundation Research News, August 29, 2023)

**New paint gives extra insulation, saving on energy, costs, and carbon emissions** (Stanford News, August 14, 2023)

**A new way to capture and recycle carbon dioxide from industrial emissions** (ACS Press Release, August 30, 2023)

**Nuclear weapons tests are unappreciated source of radioactivity in German wild boars** (ACS Press Release, August 30, 2023)

**Oxygen-28 is the heaviest oxygen isotope ever seen** (Chemistry World, September 1, 2023)

**Physicists finally observe strange isotope Oxygen 28 — raising fundamental questions** (Nature Podcast, August 30, 2023)

**Pushing cells to the extreme** (Sarafan ChEM-H News, August 28, 2023)

**Quantum-scale sensors to yield human-scale benefits with new backing from NSF** (National Science Foundation NSF News, August 22, 2023)

**'Resurrecting' the legendary figure behind Count Dracula** (ACS Press Release, August 15, 2023)

**Rare oxygen isotope detected at last — and it defies expectations** (Nature news, August 30, 2023)

**Researchers grow precise arrays of nanoLEDs** (National Science Foundation Research News, August 17, 2023)

**Researchers tune thermal conductivity of materials 'on the fly' for more energy-efficient devices** (National Science Foundation Research News, August 1, 2023)

**Rising to the demands of worsening wildfires** (Stanford News, August 10, 2023)

**Science Academies Urge Action by G20 Nations on Clean Energy, Universal and Holistic Health, and Connections Between Science and Culture** (National Academy of Sciences, August 28, 2023)

**Science's carbon footprint: how health research can cut emissions** (Nature news, August 21, 2023)

**Seismologists peer into Earth's inner core** (National Science Foundation Research News, August 10, 2023)

**Sugars in breastmilk could help treat infections, prevent preterm births** (ACS Press Release, August 9, 2023)

**Silica particles found in food and makeup could be chemically reactive, study finds** (Stanford News, August 21, 2023)

**A solution for California's wildfire safety deficit** (Stanford News, August 7, 2023)

**Tattoo technique transfers gold nanopatterns onto live cells** (ACS Press Release, August 10, 2023)

**There's Something About Sourdough: Hot Topics in Chemistry from ACS Fall 2023** (ACS Axial, August 16, 2023)

**To improve EV batteries, study them on the road** (Stanford News, August 18, 2023)

**To make drinking water safer, researcher investigates microbial communities living in pipes** (National Science Foundation Research News, August 10, 2023)

**Turning ChatGPT into a 'chemistry assistant'** (ACS Press Release, August 10, 2023)

**Turning Insects into Bioplastics: Hot Topics in Chemistry from ACS Fall 2023** (ACS Axial, August 15, 2023)

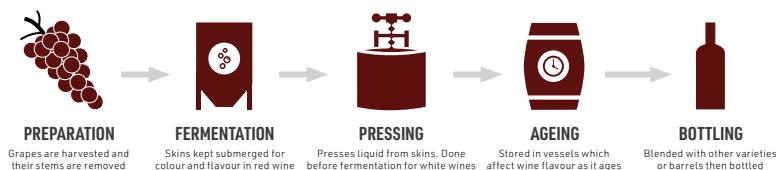
**Unlocking the mysteries of freezing in supercooled water droplets** (SLAC News, August 16, 2023)

**US safety board warns of hurricane threat to chemical facilities** (Chemistry World, August 29, 2023)

**Why you shouldn't let your guard down when it comes to COVID** (Futurity, September 1, 2023)

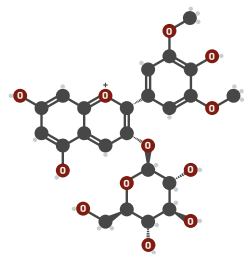


# The Chemistry of Wine



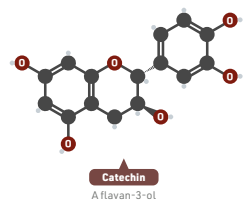
## Anthocyanins

Anthocyanins are found in the skin of grapes. As soon as the grapes are crushed, they can react with other chemicals in wine to produce polymeric pigments.



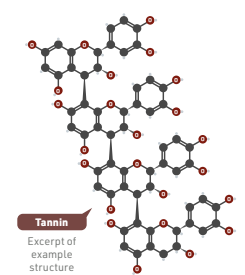
## Flavan-3-ols

Flavan-3-ols originate in the seeds of grapes, and are known for their bitterness. In red wine, the amount present can reach up to 800 milligrams per litre. 20 milligrams per litre is the amount required in order for a bitter taste to be imparted. Flavan-3-ols are found in lower levels in white wines.



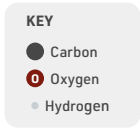
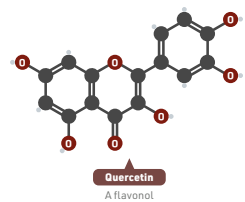
## Tannins

Tannins are polymers of other chemicals in wine. Condensed tannins are polymers of flavan-3-ols and give red wine its astringency, a dry feeling in the mouth after drinking. Changes in tannin structure over time are an important factor in wine ageing.



## Flavonols

Flavonols can help enhance the colour of red wine, via a process called 'copigmentation'. These compounds have potential anti-oxidant and anti-carcinogenic effects; however, their concentration in red wine is likely too low to confer any significant health benefits.



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